



Environmental Management



Applied Cost Engineering Team

Joint Field - Headquarters Working Group



ER Program / Project Controls & Life-Cycle Cost Estimating At The Savannah River Site

Presented by Terry J. Brennan



Center for Acquisition and Business Excellence





ER Program / Project Controls & Life-Cycle Cost Estimating

Discussion Topics



SRS / ERD Program & Project Control Processes



SRS / ERD Life-Cycle Cost Estimating



SRS / Summary Life-Cycle Cost Estimate Example (P Reactor Seepage Basins)



SRS / ERD Life-Cycle Program Overview

Sites Completed by FY2006 (291 sites)	\$ 832M
Long Term Operations (8 sites)	\$ 447M
Stewardship (27 sites)	\$ 112M
- Post Closure Management	\$ 42M
- RCRA Monitoring	<u>\$ 71M</u>

Total Cost for Sites Completed by FY06 = \$ 1.5B

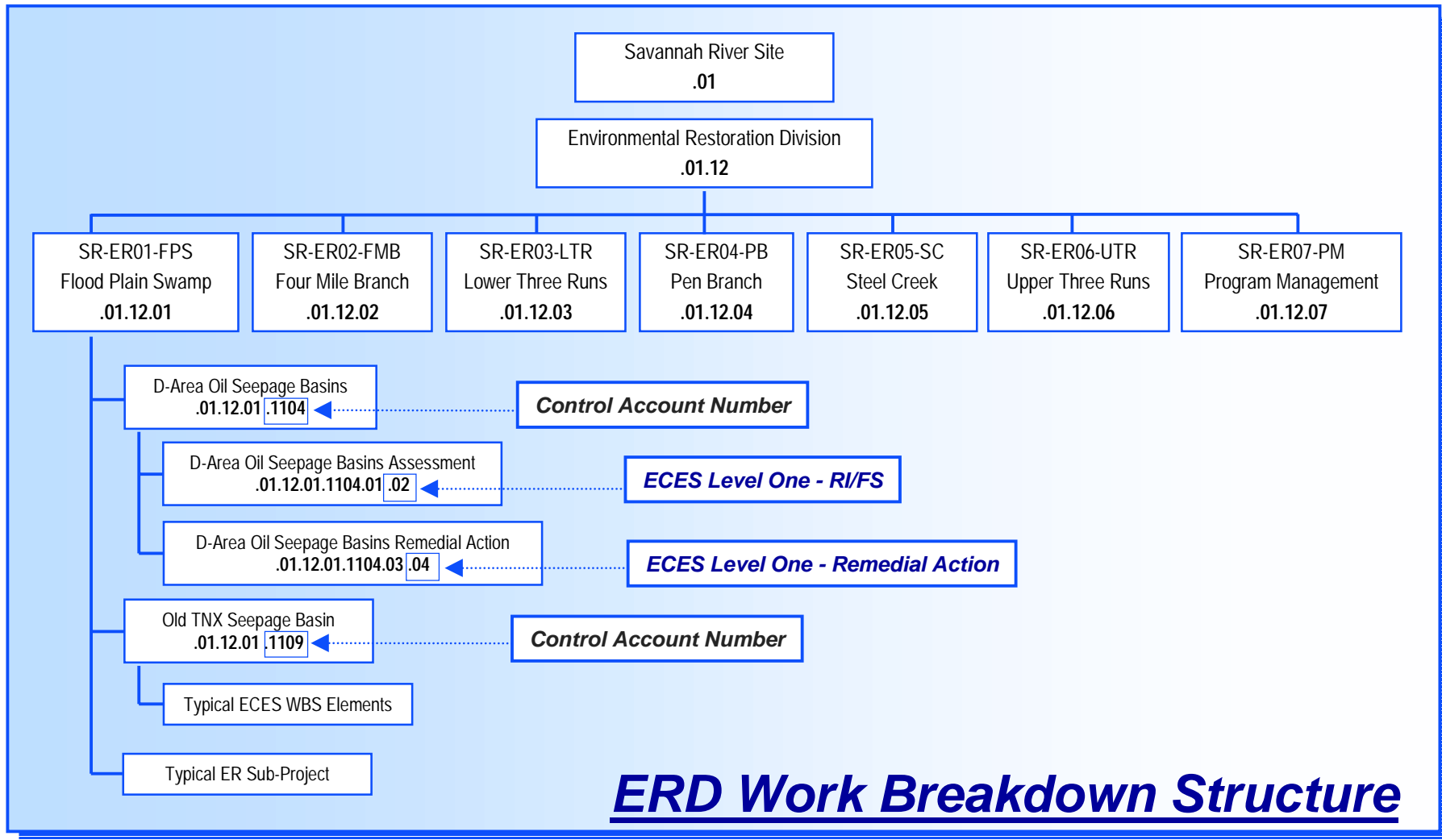
Sites Completed after FY2006 (224 sites)	\$ 1,482M
Long Term Operations (12 sites)	\$ 72M
Stewardship (31 sites)	\$ 51M
Post Closure Management	\$ 118M
RCRA Monitoring	<u>\$ 191M</u>

Total Cost for Sites Completed FY06 to FY38 = \$ 1.9B

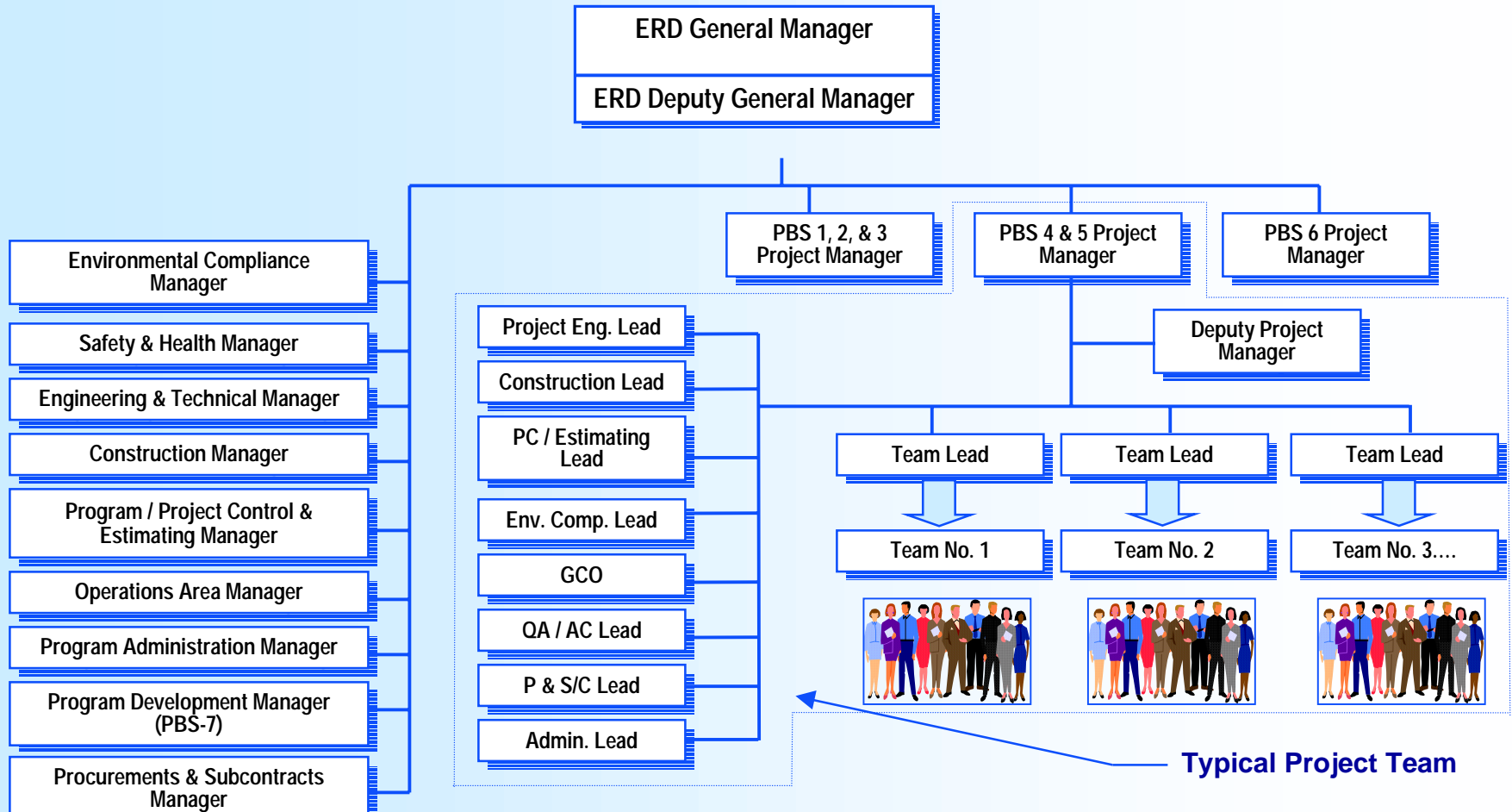
Total Life-Cycle Program Cost (515 sites) = \$ 3.4B



SRS / ERD Program & Project Controls



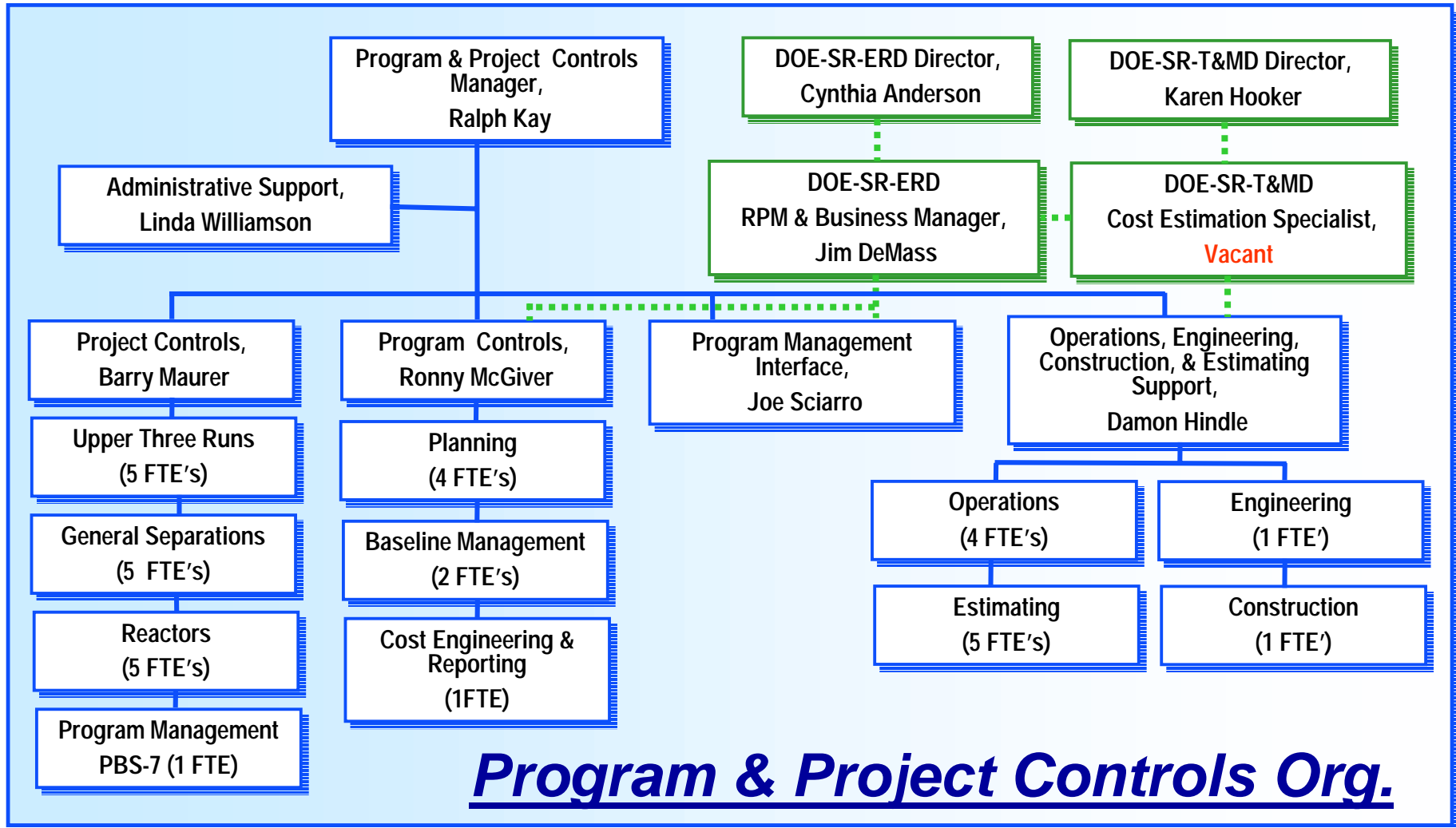
SRS / ERD Program & Project Controls



Contractor ERD Organizational Structure



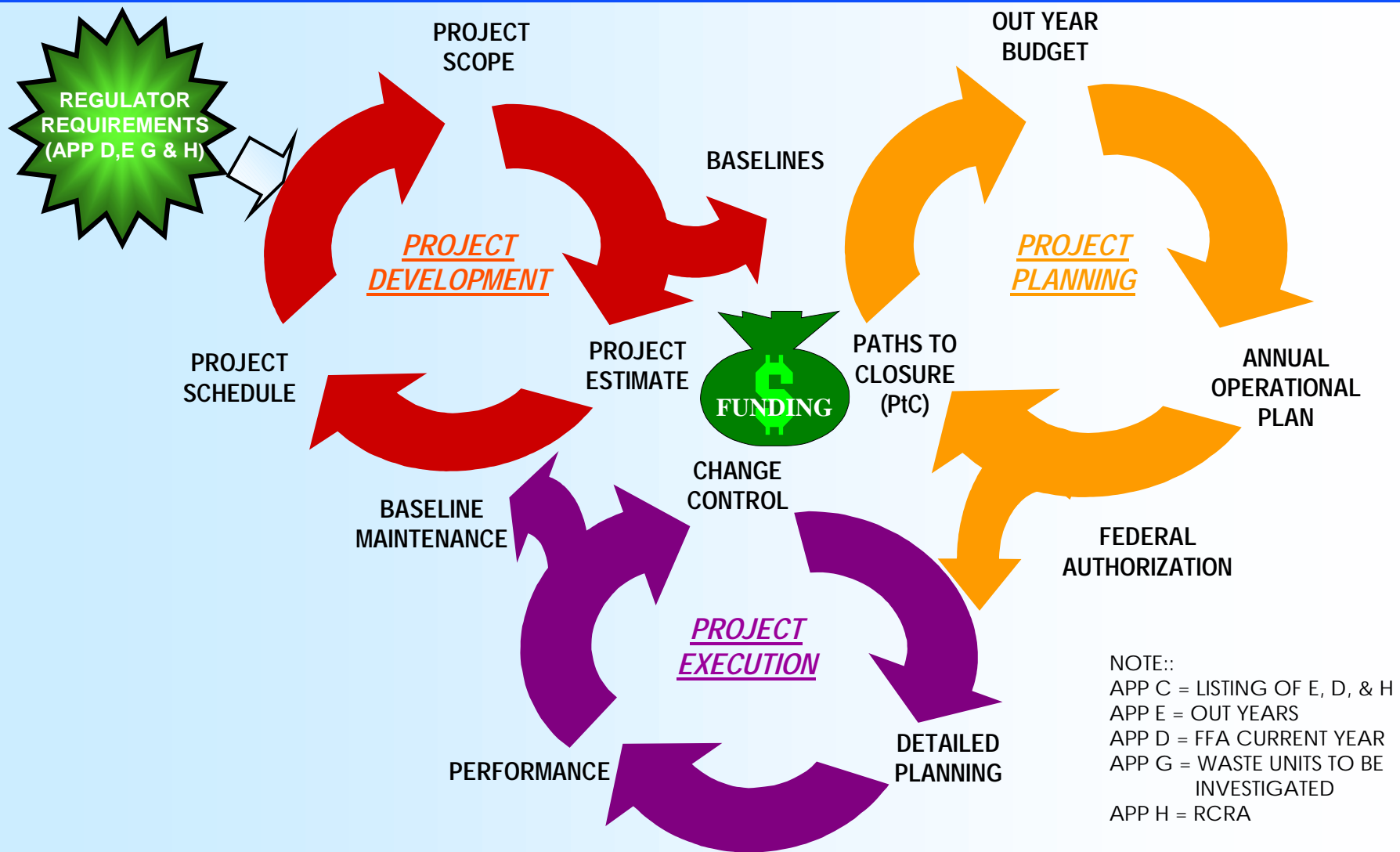
SRS / ERD Program & Project Controls



Program & Project Controls Org.

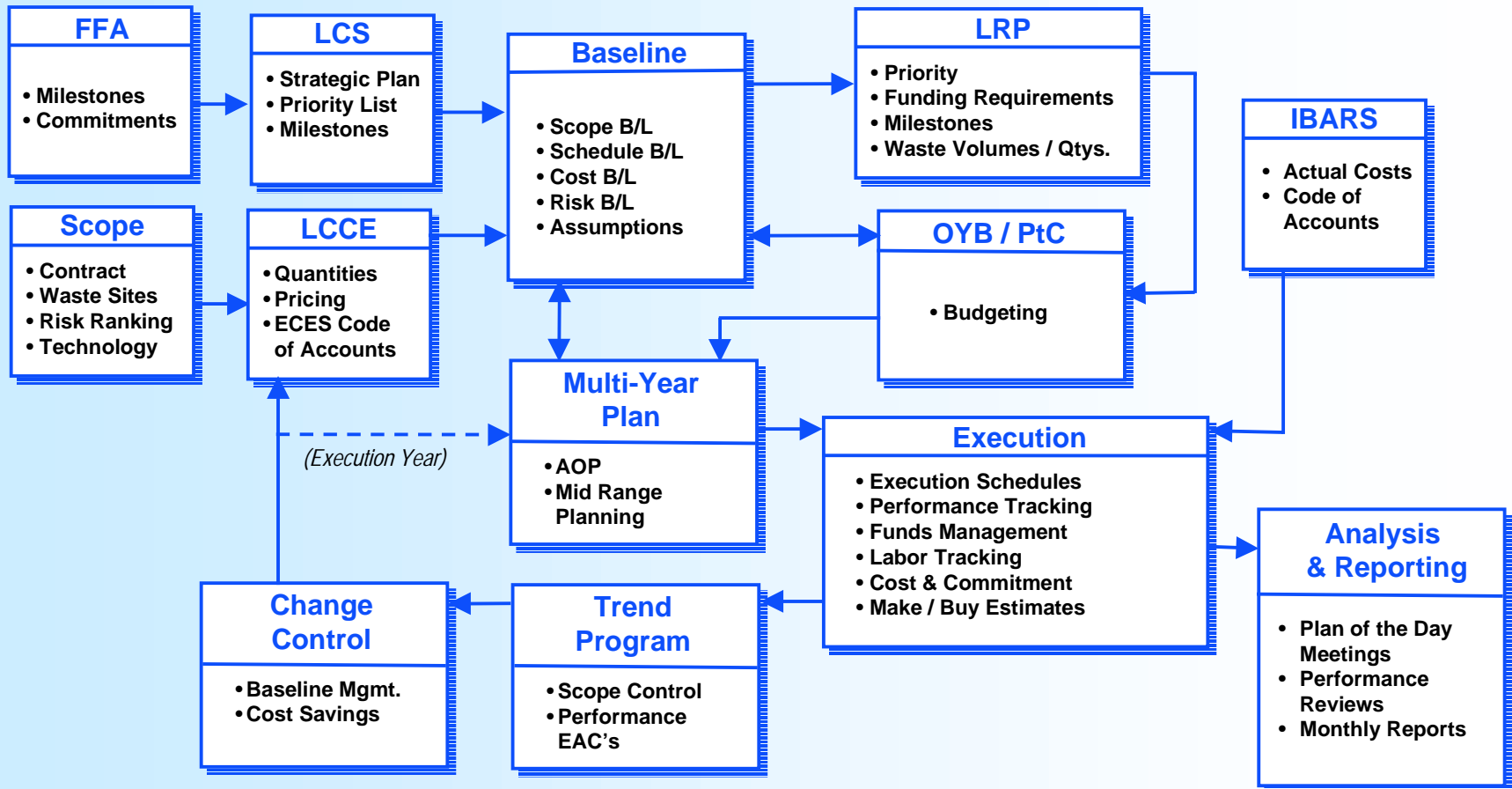


SRS / ERD Program & Project Controls



Project Development, Planning & Execution Process

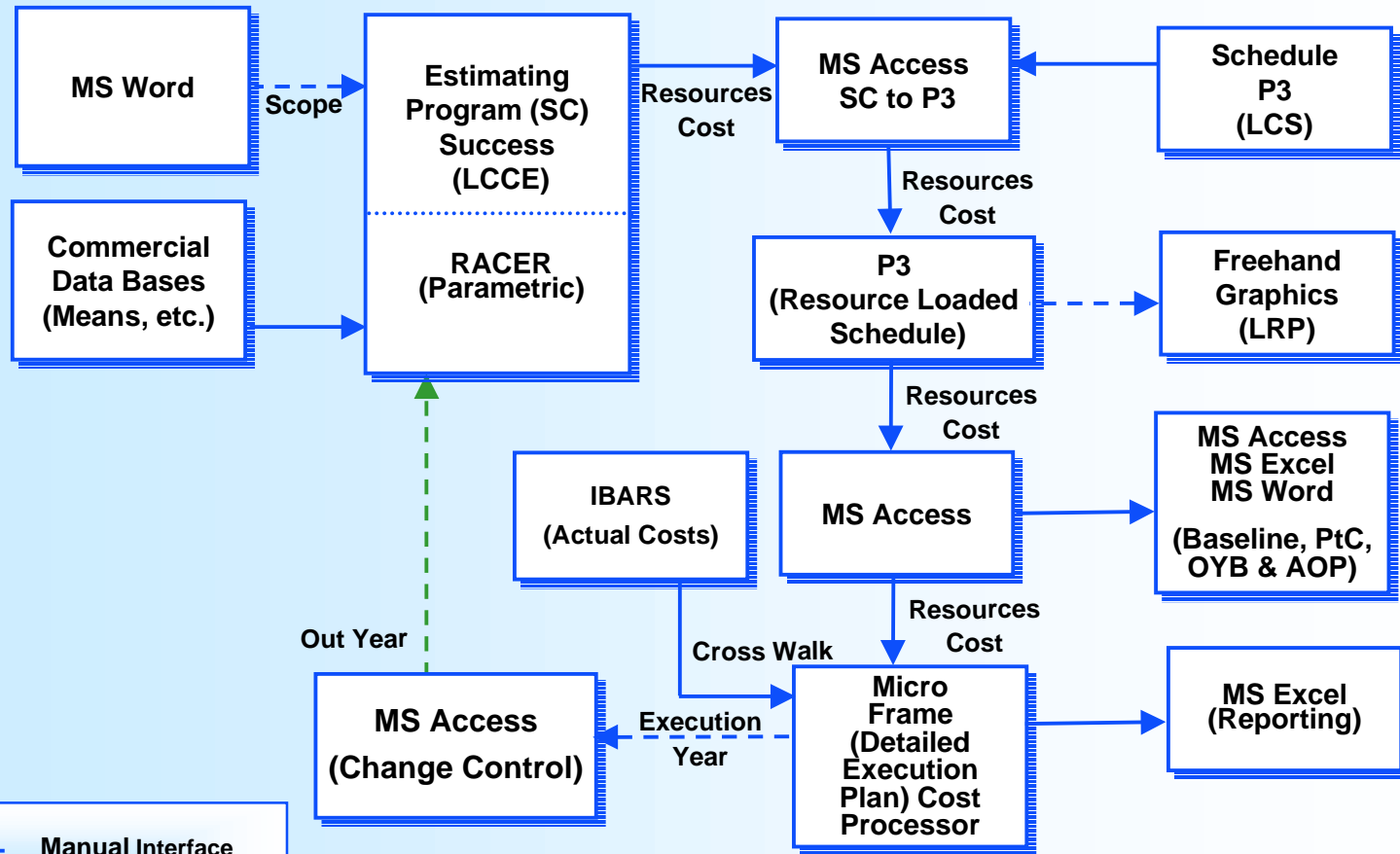
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Project Control System



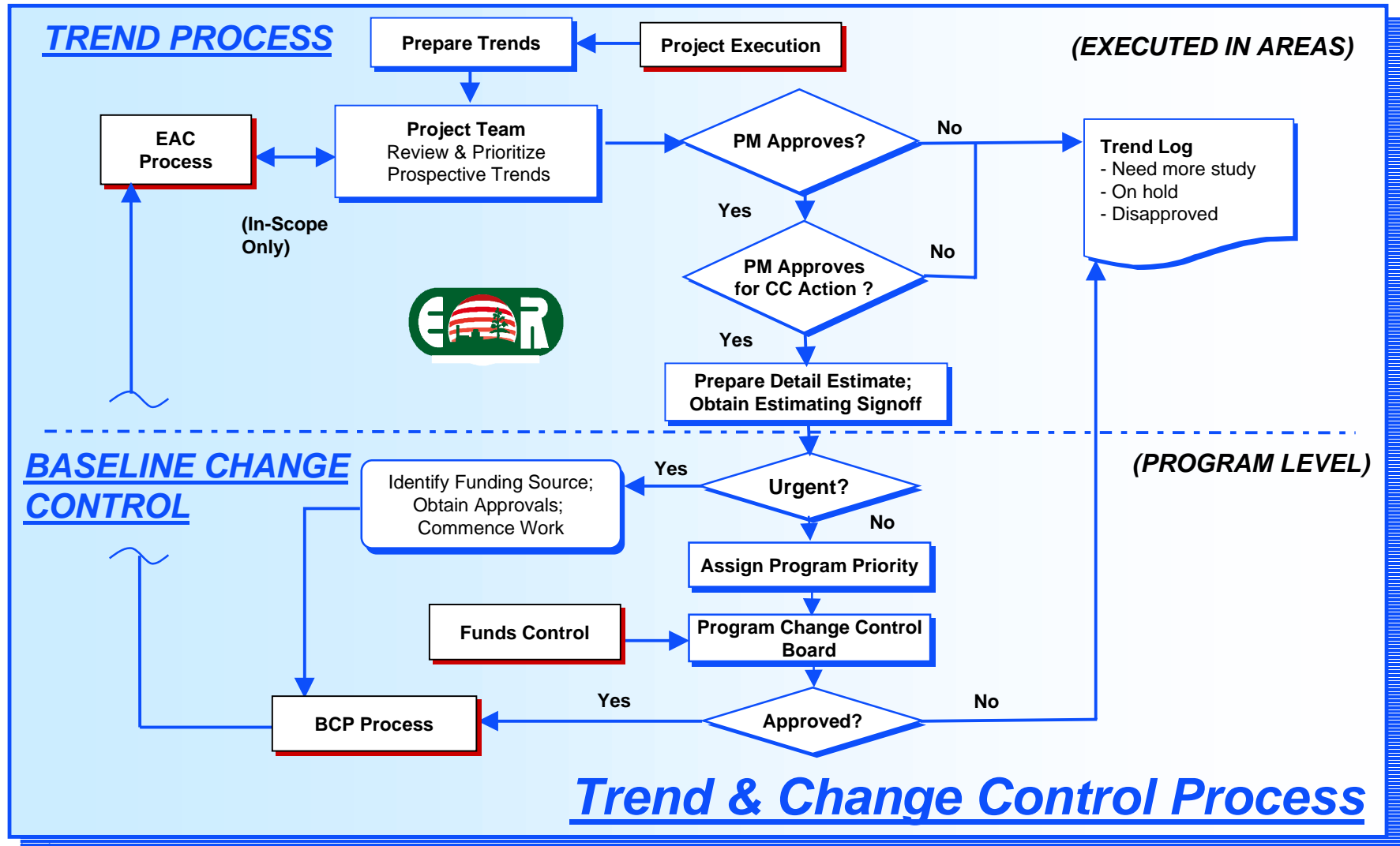
SRS / ERD Program & Project Controls










System Enablers



SRS / ERD Program & Project Controls



SRS / ERD Life-Cycle Cost Estimating

-  Consists of Scope of Work, Estimate, Resource Loaded Schedule, Contingency Analysis and Reconciliation to previous Estimate
-  Estimates are Quantity Driven & “Bottoms-Up” Activity Based
-  Encompasses entire life of Project (LCAM) - DOE Order 430.1A
-  Developed and owned by Project Managers and Project Teams, including DOE WAG Managers, Technical, Engineering, Compliance, and Project Controls
-  Originally reviewed annually to ascertain best technology selection / process modified to align with life-cycle phase (ECES/CERCLA) of projects (DOE O 413.3 - Critical Decision Points)
-  Monte Carlo Contingency Analysis performed on each project
-  Post 2006 Projects are Done by Parametric Estimating



SRS / ERD Life-Cycle Cost Estimating

2. RI/FS Phase

- | | |
|---|---|
| 01. Pre-Workplan Sampling & Analysis Plan | 07. RFI/RI/BRA Report |
| 02. Pre-Workplan Characterization | 09. CMS/FS |
| 03. RFI/RI/BRA Workplan | 14. Regulatory Requirements (SB/PP & ROD) |
| 04. RFI/RI/BRA Characterization | 29. Project Support (RI/FS Phase) |
| 06. Modeling | |

3. Remedial Design Phase

- 10. Treatability Studies
- 11. Additional Studies
- 12. Additional Characterizations
- 13. Preliminary Engineering
- 15. Detail Engineering & Pre Construction
- 39. Project Support (Remedial Design Phase)

4. Remedial Action Phase

- 05. Interim/Early Action
- 16. Construction
- 17. Post Construction
- 25. Start Up
- 49. Project Support (Remedial Action Phase)

5. Operations & Maintenance

- 26. Operations
- 27. Maintenance
- 59. Project Support (O & M Phase)

6. Post Closure Surveillance & Long Term Monitoring Phase

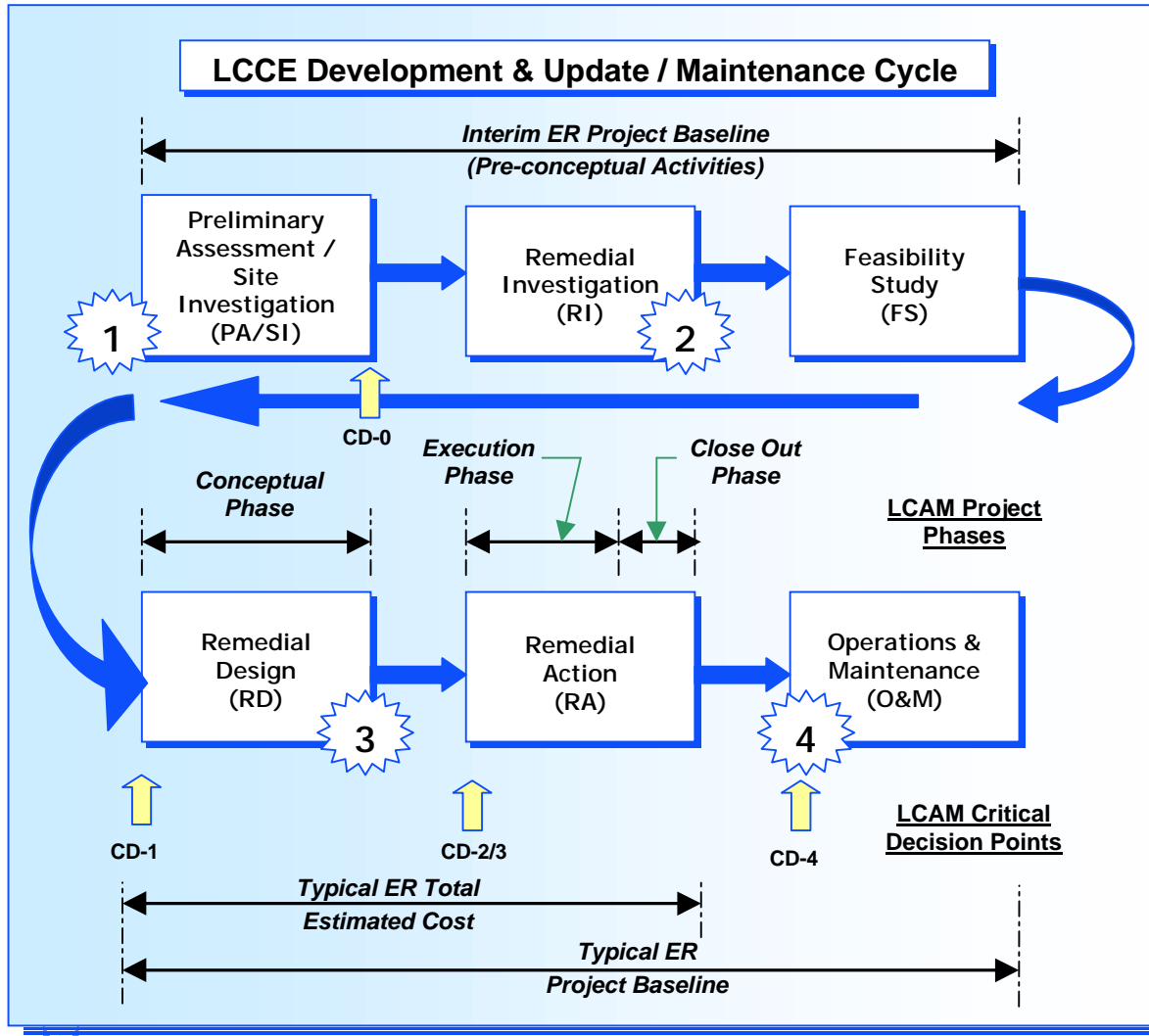
- 18. Well Monitoring & Institutional Controls
- 28. Compliance Support
- 69. Project Support (PC&S / LTM Phase)

CONSTRUCTION

REMEDIAL ACTION



SRS / ERD Life-Cycle Cost Estimating



1

LCCEs will be prepared at project inception and maintained throughout the life of the project. Project inception is defined as that point in time when the Site Evaluation group has completed the Preliminary Assessment of a release site and determined that the site will require further assessment and or remediation.

2

Characterization Activities Complete. Preliminary data indicates a change in scope or technology is required.

3

Remedial Design Complete. This revision will incorporate the definitive estimate prepared for the completed design.

4

Operations Pending (LTS). For those estimates that have operations, the treatment facility is complete and a well founded basis is available to update the cost of activities associated with O& M of the treatment facility over it's projected life-cycle.

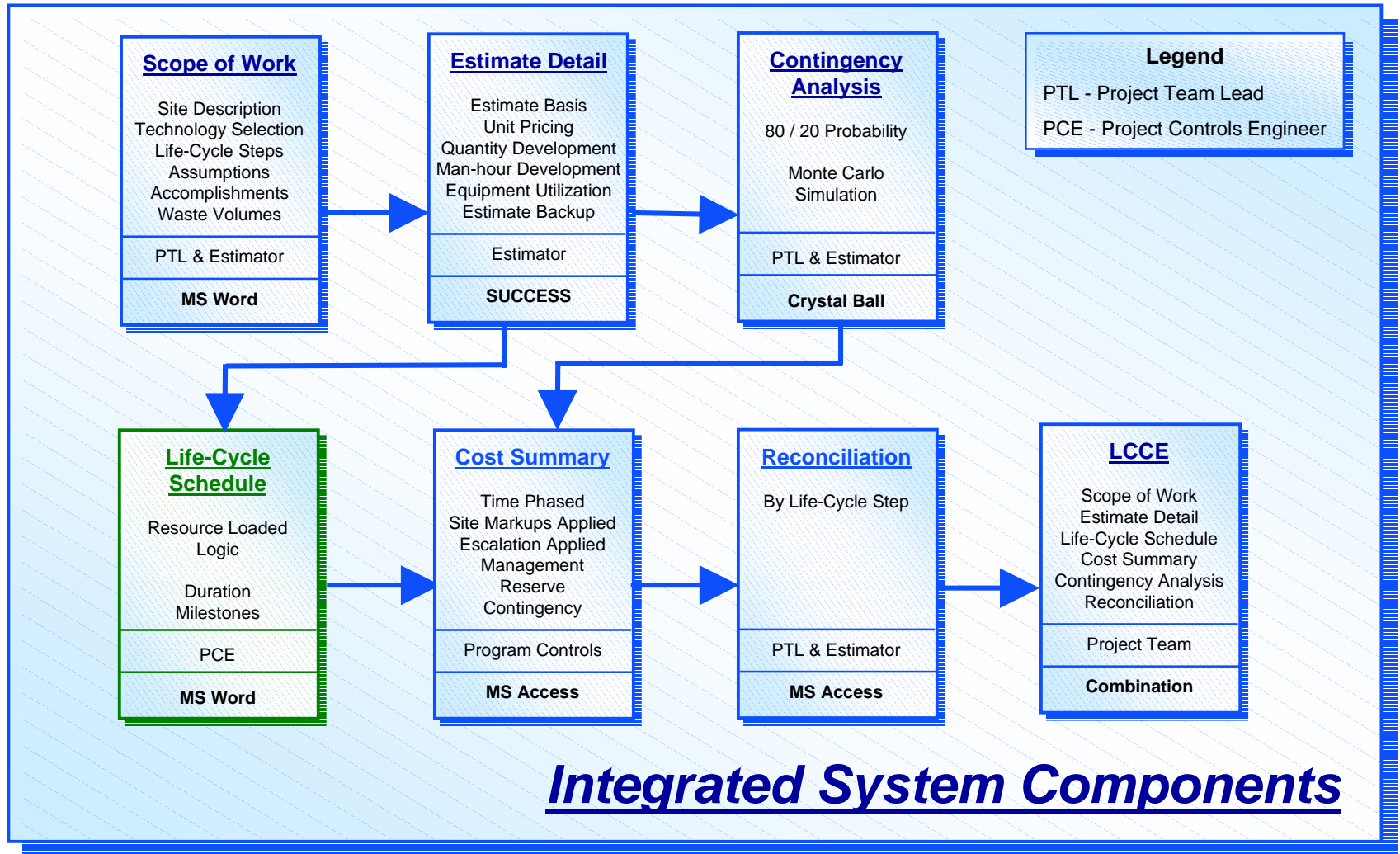
5

Major Scope or Technology Change. Any LCCE may be updated at any time during the life of the project if a major scope or technology change has been identified.

6

Customer Request. The Project Manager or DOE WAG Manager may request a revision to the LCCE at any time.

SRS / ERD Life-Cycle Cost Estimating



SRS / ERD Life-Cycle Cost Estimating

P Reactor Seepage Basins

PBS No. ER-03, Sub-project No. 1128

P Reactor Seepage Basin Life-Cycle Cost Summary

												FY99 LCCE Update			
PBS No. ER-03	Sub Project No. 1128	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	Total
Project Phase															
Assessment		\$703	\$273	\$572	\$333	\$2,576	\$722	\$274	\$29	\$0	\$0	\$0	\$0	\$0	\$5,482
Interim Actions		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Remediation		\$0	\$0	\$0	\$170	\$317	\$2,935	\$4,061	\$4,050	\$3,356	\$569	\$0	\$0	\$0	\$15,458
Project Support		\$91	\$91	\$81	\$110	\$242	\$147	\$147	\$85	\$65	\$54	\$0	\$0	\$0	\$1,113
Escalation		\$0	\$0	\$18	\$33	\$263	\$434	\$659	\$751	\$734	\$155	\$0	\$0	\$0	\$3,047
Management Reserve		\$0	\$11	\$20	\$19	\$101	\$127	\$154	\$147	\$125	\$23	\$0	\$0	\$0	\$727
Contingency		\$0	\$105	\$193	\$186	\$979	\$1,220	\$1,481	\$1,416	\$1,197	\$224	\$0	\$0	\$0	\$7,001
Total Life-Cycle Cost	(\$000)	\$794	\$480	\$884	\$851	\$4,478	\$5,585	\$6,776	\$6,478	\$5,477	\$1,025	\$0	\$0	\$0	\$32,828



SRS / ERD Life-Cycle Cost Estimating

P Reactor Seepage Basins (FY99 LCCE Update)

